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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/862,755	05/21/2001	Ye Li	1999-0759	8169

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EXAMINER

LE, AMANDA T

ART UNIT

PAPER NUMBER

2634

DATE MAILED: 08/25/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/862,755

Applicant(s)

LI, YE

Examiner

Amanda T Le

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 May 2001.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-28 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 13 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 18-20 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. A claim to data structure per se, i.e., a set of communication signals, is held non-statutory. See MPEP 2106.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-28 are rejected under 35 U.S.C. 102(e) as being anticipated by Heiskala.

Heiskala discloses a method and apparatus for estimating channel frequency responses in an OFDM system comprising the following claimed limitations:

In claims 1, 7, 18, 20, 21, “transmitting a set of first training symbols using a first communication channel” (Fig. 4, 402, 404, 406, col. 6, lines 29-31), “transmitting one or more sets of second training symbols using one or more second communication channels” (Fig. 4, 408, 410, 412, col. 6, lines 29-31), “one or more second sets of training symbols are based on the set of first training symbols” (col. 7, lines 5-10), “a cross-correlation estimate between the first set of

training symbols and at least one of the sets of second training symbols is essentially zero” (col. 7, lines 45-48);

In claim 2, “the first set of training symbols is transmitted using an orthogonal frequency division multiplexing technique” (Abstract);

In claim 3, “each cross-correlation estimate between the first set of training symbols and every set of the one or more sets of second training symbols is essentially zero” (col. 7, lines 45-48);

In claim 4, “each cross-correlation estimate between every two sets of training symbols of the one or more sets of second training symbols is essentially zero” (col. 7, lines 60-65);

In claims 5, 6, 19, 22, “at least one set of the one or more sets of second training symbols is substantially identical to the set of first training symbols with a respective phase shift” (col. 7, line 53);

In claims 8-10, 16, 24-26 “receiving the set of first training symbols” (Fig. 4, 416); “receiving at least one of the one or more sets of second training symbols” (Fig. 4, 416), “characterizing two or more communication channels based on the set of first training symbols and the one or more second sets of training symbols” and “does not use a matrix inversion” (col. 7, lines 20, 35-40); “a cross-correlation estimate between the first set of training symbols and at least one of the sets of second training symbols is essentially zero” (col. 7, lines 45-48);

In claim 11, “the first set of training symbols is transmitted using an orthogonal frequency division multiplexing technique” (Abstract);

In claim 12, "each cross-correlation estimate between the first set of training symbols and every set of the one or more sets of second training symbols is essentially zero" (col. 7, lines 45-48);

In claim 13, "each cross-correlation estimate between every two sets of training symbols of the one or more sets of second training symbols is essentially zero" (col. 7, lines 60-65);

In claims 14, 15, 27, "at least one set of the one or more sets of second training symbols is substantially identical to the set of first training symbols with a respective phase shift" (col. 7, line 53);

In claim 17, "the set of first training signals is transmitted using a first transmit device" (Fig. 4, 402, 404, 406, col. 6, lines 29-31), "the one of the one or more sets of second training signals is transmitted using a second transmitting device" (Fig. 4, 408, 410, 412, col. 6, lines 29-31),

In claim 23 and 28, "the set of second training symbols is related to the set of first training symbols according to: $t_2[n, k] = t_1[n, k] W_K^{-kl_0}$ " (col. 7, lines 60-65, when $K = 4kl_0$).

Double Patenting

4. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

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5. Claims 24-26 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 18-20 of copending Application No. 09/861,811. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claims 10, 16, 18, 20 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 18, 20, 18, 19 of copending Application No. 09/861,811. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims use different wordings to recite the same subject matters

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Jones IV et al discloses an OFDM channel identification method.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amanda T Le whose telephone number is (703) 305-4769.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (703) 305-6714. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



AMANDA T. LE
PRIMARY EXAMINER